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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,097	04/27/2001	Nobuo Tanabe	113197-009	9751

24573 7590 12/19/2002
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EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,097

Applicant(s)

TANABE ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The request filed on 10/15/02 for a Request For Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 09/844,097 is acceptable and a RCE has been established. An action on the RCE follows.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "Figure 2" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Figure 2 must show all of the limitations and structures of the claimed invention due to the present invention, for example: adhesive layers have higher glass transition temperature, etc.

Applicant recites the limitations of "the base film side adhesive layer or cover layer side adhesive layer has a high glass transition temperature" and imply shown in figure 1, so if figure 2 having different material of the adhesive layers to emphasize higher glass transition temperature than an operation temperature (60 degrees or higher) then figure 2 must be shown or described in a specification specific material of the adhesive layers which are different than the adhesive layers of the figure 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gurrie et al. (U. S. Patent 5,296,651) in view of Noda et al. (U. S. Patent 4,913,955).

Gurrie discloses a flexible printed circuit board (10-figure 2, column 3, line 13) as shown in figures 1-4 comprising:

a base film (24, column 3, line 21);

a base film side adhesive layer (22-figure 4, column 3, line 20) provided on the base film (24);

a metal coil layer (12, column 3, line 11) on which a pattern circuit is formed, provided on the base film side adhesive layer (22-figure 4); and

a cover layer side adhesive layer (20-figure 4, column 3, line 20) provided on the metal foil layer (12).

Gurrie does not teach a material made by an epoxy resin adhesive that being form said base film side adhesive layer and cover layer side adhesive layer having a high glass transition temperature (greater 60 or 80 degrees Celsius) than an operating temperature of the flexible circuit board.

Noda teaches a flexible circuit board (1-figures 1-3) comprising a center adhesive layer (5-figure 1, column 3, line 17) made by an epoxy resin adhesive that provide a high glass transition temperature (about 130 degrees Celsius) than an operation temperature (column 3, lines 1-2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an epoxy resin adhesive that provide a high glass transition temperature than an operation temperature as taught by Noda to employ the flexible circuit board of Gurrie in order to provide a flexion of laminate of the flexible circuit board at high temperature, and also provide a flex life of the flexible circuit board being the number of times the circuit can be flex before failing.

Gurrie and Noda disclose the bending life of the flexible circuit board which in a range to provide a long life for the flexible circuit board having the epoxy resin including

high glass temperature about 130 degrees Celsius. Although, Gurrie and Noda do not explicitly state the number of flexures, since Noda is using the same material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the epoxy resin including high glass temperature about 130 degrees Celsius having a bending life which are capable of being at least ten million times at 60 degrees Celsius or one million to ten million times at 80 degrees Celsius that in a range of 130 degrees Celsius of Gurrie and Noda in order to provide the expected longevity testing of the flexible circuit board.

Response to Arguments

5. Applicant's arguments with respect to claims 1-4, 6-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Szerlip et al., Vu et al., Hatano et al., and Gonya disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
December 10, 2002.

Albert W. Paladini 12-17-02
ALBERT W. PALADINI
PRIMARY EXAMINER